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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,145	03/29/2004	William Edmund Cranstoun Kentish	282568US8X	2154

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EXAMINER	
FLANDERS, ANDREW C	
ART UNIT	**PAPER NUMBER**
2614	

NOTIFICATION DATE	DELIVERY MODE
05/20/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/812,145	KENTISH ET AL.	
	Examiner	Art Unit	
	ANDREW C. FLANDERS	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,6-28,32 and 36-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6-28,32 and 36-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09 February 2009 has been entered.

Response to Arguments

Applicant's arguments filed 09 February 2009 have been fully considered but they are not persuasive.

Applicant alleges:

> As such, in the method of Taro, in order to embed the watermark, the audio signal (basic part comprising three frequency bands) is added to a signal generated by the watermark signal generator. As such, it is respectfully submitted that Taro does not replace one of the frequency bands, as suggested by the outstanding Office Action.

Examiner respectfully disagrees. Applicant agrees that Taro discloses at least adding a watermark signal to an audio signal. While Examiner does not necessarily agre that Taro doesn't explicitly disclose "replacing" one of the frequency bands, it is not necessary as the claim language reads "by combining **or** replacing" Thus, either a

combination or replacement need be present to meet the claim language. Examiner submits that the addition (which Applicant acknowledged) at least meets the combining.

Applicant further alleges:

> Additionally, Applicants respectfully submit that Taro is completely silent regarding "combining or replacing one or more of said subset of band data components with corresponding band data components of a spectrally encoded digital audio watermark signal, multiplied by a scaling factor, as recited in Claim 1.
>
> As stated above, the second embodiment of Taro uses the same method of embedding the watermark as does the first embodiment. To this end, the watermark signal that is added to the basic part in the second embodiment of Taro is merely a time-domain inaudible level of signal noise.9 As such, Applicants respectfully submit that the watermark signal of Taro (i.e., time-domain inaudible level of signal noise) is patentably distinct from band data components of a spectrally encoded digital audio watermark signal, multiplied by a scaling factor, as recited in the presently claimed invention, as these components are different in scope and structure.

Examiner respectfully disagrees. Examiner agrees that Taro does not explicitly dislose the scaling portion of the bolded limitations. however, the rejection shows how it is made obvious in view of the Taro disclosure. Further, Taro discloses placing keys in various frequency bands. This at least meets the “spectrally encoded” limitation in question by Applicant.

Applicant further alleges:

> Finally, the outstanding Office Action cited frequency bands 403 and paragraph [0078] as reciting "band data components representing audio contributions in respective frequency bands," as recited in Claim 1 . However, Applicants respectfully submit even if the basic part of the audio signal of embodiment 2 of Taro can be considered to be one frequency

> band, Taro is completely silent regarding any form of spectrally encoded watermark signal. To this end, Applicants note that one of skill in the art would readily understand "spectrally encoded" to mean the same as "frequency encoded," as recited in Applicants disclosure at page 5, lines 7-20.

Examiner respectfully disagrees for the same reasons as stated above. Examiner maintains that placing a specific watermark in a specific frequency band at least meets “spectrall encoded.” Even if it did not, to which the Examiner does not necessarily agree, frequency encoding the signal (as Applicant appears to require) would be an obvious modification of the device.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 – 3, 6 – 27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1 – 3 and 6 – 27 are rejected as being directed to a method that is not “tied to” a corresponding apparatus or machine. The altering, generating and other processing steps of the claims can be interpreted as nothing more than a series of mental steps. The storing steps can be interpreted as simply memorizing the results in a persons mind.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 – 3, 6 – 28, 32 and 36 – 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taro (EP 1 189 362 A2).

Regarding **Claim 1**, Taro discloses:

A method of processing a spectrally-encoded digital audio signal (title and abstract) comprising band data components representing audio contributions in respective frequency bands (separating the audio data with frequency band separator 401; para 78), said method comprising the steps of:

altering a subset comprising one or more of said band data components by combining or replacing one or more of said band data components by corresponding band data components from a spectrally-encoded digital audio watermark signal (i.e. embedding the keys, as watermarks, into one of the bands; embodiment 2) to produce a band-altered digital audio signal having altered band data components (embedding various keys within the frequency bands; see second embodiment); and

generating recovery data to allow original values of said altered band data components to be reconstructed (i.e. the generation of the keys used in decryption/ or reading the keys out from storage; second embodiment);

storing the results of the altering in a physical memory unit (storage 107 or 114 or recording on a compact disc).

Taro fails to explicitly disclose that the audio watermark signal is multiplied by a scaling factor. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to multiply the watermark signal by a scale factor. Taro

recognizes that it is desirable to ensure the signal is inaudible and scaling the signal would ensure this was achieved. Scaling the signal would not alter the output so long as the scale factor was chosen such that the signal was still recoverable during restoration.

Regarding **Claim 2**, in addition to the elements disclosed above regarding claim 1, Taro further discloses:

comprising the step of encrypting said recovery data (i.e encryption using the keys; second embodiment).

Regarding **Claim 3**, in addition to the elements disclosed above regarding claim 1, Taro further discloses:

in which said recovery data comprises said subset of said band data components (i.e. the keys are embedded into the band data and are integral; second embodiment).

Regarding **Claim 6**, in addition to the elements disclosed above regarding claim 1, Taro further discloses:

in which said subset of said band data components is a predetermined subset of said band data components (i.e. telephone voice band, low and high frequency band; embodiment 2).

Regarding **Claim 7**, in addition to the elements disclosed above regarding claim 1, Taro further discloses:

in which said recovery data defines which of said band data components are in said subset of said band data components (i.e. certain keys are embedded into certain bands; embodiment 2).

Regarding **Claim 8**, in addition to the elements disclosed above regarding claim 4, Taro further discloses:

detecting which of said band data components of said watermark signal are most significant over at least a portion of said watermark signal (i.e. the system determines the least significant bit, during this determination it must also determine the most significant bit in order to accurately identify the LSB; para 82), said most significant band data components forming said subset of said band data components (these most and least significant portions all make up the band data components; i.e. subbands produced by the frequency separation; embodiment 2).

Regarding **Claim 9**, in addition to the elements disclosed above regarding claim 8, Taro further discloses:

in which said detecting step comprises detecting which of said band data components of said watermark signal are most significant over the entirety of said watermark signal (to determine the LSB and MSB, the entirety of the signal must be analyzed).

Regarding **Claim 10**, in addition to the elements disclosed above regarding claim 8, Taro further discloses:

in which said watermark signal and said digital audio signal are each encoded as successive data frames representing respective time periods of said watermark signal and said digital audio signal (i.e. the frequency encoded signal represents a time domain signal encoded in a format that sets successive bands respectively) said detecting step comprising:

detecting which of said band data components of said watermark signal are most significant over a group of one or more of said data frames of said watermark signal, said most significant band data components forming said subset of said band data components in respect of a corresponding group of one or more frames of said digital audio signal (i.e. the system determines the least significant bit, during this determination it must also determine the most significant bit in order to accurately identify the LSB; para 82).

Regarding **Claim 11**, in addition to the elements disclosed above regarding claim 5, Taro further discloses:

detecting which of said band data components of said watermark signal are most significant over at least a portion of said watermark signal (i.e. the system determines the least significant bit, during this determination it must also determine the most significant bit in order to accurately identify the LSB; para 82)., said most significant

band data components forming said subset of said band data components (these bits are part of the sub band components of the signal; embodiment 2).

Regarding **Claim 12**, in addition to the elements disclosed above regarding claim 11, Taro further discloses:

in which said detecting step comprises detecting which of said band data components of said watermark signal are most significant over the entirety of said watermark signal (i.e. the system determines the least significant bit, during this determination it must also determine the most significant bit in order to accurately identify the LSB; para 82).

Regarding **Claim 13**, in addition to the elements disclosed above regarding claim 11, Taro further discloses:

in which said watermark signal and said digital audio signal are each encoded as successive data frames representing respective time periods of said watermark signal and said digital audio signal (i.e. the frequency encoded signal represents a time domain signal encoded in a format that sets successive bands respectively) said detecting step comprising:

detecting which of said band data components of said watermark signal are most significant over a group of one or more of said data frames of said watermark signal, said most significant band data components forming said subset of said band data components in respect of a corresponding group of one or more frames of said digital

audio signal (i.e. the system determines the least significant bit, during this determination it must also determine the most significant bit in order to accurately identify the LSB; para 82).

Regarding **Claim 14**, in addition to the elements disclosed above regarding claim 11, Taro further discloses:

comprising the step of detecting which of said band data components of said watermark signal differ most significantly from corresponding band data components of said digital audio signal over at least corresponding portions of said watermark signal and said digital audio signal(i.e. the system determines the least significant bit, during this determination it must also determine the most significant bit in order to accurately identify the LSB; para 82)., said most significantly differing band data components forming said subset of said band data components (these most and least significant portions all make up the band data components; i.e. subbands produced by the frequency separation; embodiment 2).

Regarding **Claim 15**, in addition to the elements disclosed above regarding claim 5, Taro further discloses:

comprising the step of detecting which of said band data components of said watermark signal differ most significantly from corresponding band data components of said digital audio signal over at least corresponding portions of said watermark signal

and said digital audio signal(i.e. the system determines the least significant bit, during this determination it must also determine the most significant bit in order to accurately identify the LSB; para 82)., said most significantly differing band data components forming said subset of said band data components (these most and least significant portions all make up the band data components; i.e. subbands produced by the frequency separation; embodiment 2).

Regarding **Claim 16**, in addition to the elements disclosed above regarding claim 5, Taro further discloses:

in which said band data components forming said subset of said band data components are defined by a pseudo-random function (Taro discloses using MP3 or AAC encoding, both of which employ pseudo-random functionality).

Regarding **Claim 17**, in addition to the elements disclosed above regarding claim 1, Taro further discloses:

in which said digital audio signal is stored (storing the resultant encrypted audio) in a data format having at least:

format-defining data specifying a quantity of data available to store said digital audio signal (AAC or MP3);

said band data components (frequency encoded audio; mp3 or AAC); and

zero or more ancillary data space (key data stored in frequency bands; inaudible area).

Regarding **Claim 18**, in addition to the elements disclosed above regarding claim 17, Taro further discloses:

comprising the step of storing said recovery data in said ancillary data space (i.e. key data stored in the frequency bands in inaudible portions).

Regarding **Claim 19**, in addition to the elements disclosed above regarding claim 17, Taro further discloses:

comprising the step of altering said format-defining data to specify a larger quantity of data to store said digital audio signal, thereby increasing the size of said ancillary data space (i.e. MP3 and AAC can have their characteristics changed to enable larger storage, more bits or less depending on user preferences. alteration would allow for more frequency bands and thus more ancillary data space).

Regarding **Claim 20**, in addition to the elements disclosed above regarding claim 1, Taro further discloses:

comprising the step of appending said recovery data to said band-altered digital audio signal (i.e. embedding keys into the sub bands; embodiment 2).

Regarding **Claim 21**, in addition to the elements disclosed above regarding claim 1, Taro further discloses:

comprising the step of adjusting the number of said band data components in said subset of said band data components in accordance with the data capacity available for said recovery data (i.e. band filtering using minimum or maximum frequency band components; col. 12 embodiment 2).

Regarding **Claim 24**, in addition to the elements disclosed above regarding claim 1, Taro further discloses:

A method of distributing spectrally-encoded audio content material, said method comprising the steps of:

processing said spectrally-encoded audio content material in accordance with the method of claim 1 to form a band-altered digital signal and recovery data (see rejection of claim 1 above);

encrypting said recovery data to form encrypted recovery data (i.e. encrypting the bands with embedded keys; embodiment 2);

supplying said band-altered digital signal and said encrypted recovery data to a receiving user (sending the encrypted data to an audio player; embodiment 2); and

supplying a decryption key to said receiving user to allow said receiving user to decrypt said encrypted recovery data (i.e. the encrypted audio data includes various keys; embodiment 2).

Regarding **Claim 25**, in addition to the elements stated above regarding claim 24, Taro further discloses:

in which said supplying step takes place only if a payment is received from said receiving user (i.e. content provider an urge the user to pay a fee for the music; page 9).

Regarding **Claim 26** in addition to the elements stated above regarding claim 1 Taro further discloses:

A method of receiving spectrally-encoded audio content material, said method comprising the steps of:

receiving a band-altered digital signal and encrypted recovery data from a content provider, said band-altered digital signal and said recovery data having been generated by combining or replacing one or more band data components with corresponding band data components form a spectrally-encoded digital audio watermark signal, multiplied by a scaling factor to produce a band-altered digital audio signal having altered band data components (See rejection of claim 1);

storing said band-altered data signal in a physical memory unit (storage 107 or 114; or recording on a compact disc).

generating recovery data to allow original values of said altered band data components to be reconstructed (See rejection of claim 1);

receiving a decryption key to allow decryption of said encrypted recovery data (i.e. the keys which are embedded are sent to the audio player; embodiment 2);

decrypting said encrypted recovery data to form decrypted recovery data (using the keys to decrypt the audio data; embodiment 2);

processing said band-altered digital signal by altering said subset of said band data components in accordance with said recovery data to reconstruct said original values of said subset of said band data components (decoding the received encrypted signal for playback; embodiment 2); and

reproducing audio content based on the reconstructed original values of said subset of said band data components (decryption and playback as taught in Embodiment 2).

Regarding **Claim 27**, in addition to the elements stated above regarding claim 26, Taro further discloses:

Providing a payment to said content provider (i.e. content provider an urge the user to pay a fee for the music; page 9).

Regarding **Claims 28 and 32**, Claims 28 and 32 claim various forms of software for performing the above methods. Taro does not explicitly disclose software for performing the functions but they are extremely obvious if not inherently present. Taro discloses various computer related modules and also discloses compressing audio data. Audio compression is typically done using software in the art. While it can be done in other ways, software provides the cheapest and easiest implementation. It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the system using software. Its cheap and easy implementation would be desirable in the system.

Claims 22 – 23, 36 – 39 and 41 claim the same limitations as the claims above and are rejected under the same grounds.

Regarding **Claim 40**, in addition to the elements disclosed above regarding claim 38, Taro fails to explicitly disclose using a set top box. However, set top boxes are notoriously well known to include audio and pay per view events in the cable television art. IT would be desirable to implement the features of Taro to a typical set to box to prevent piracy in a pay per view television event.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW C. FLANDERS whose telephone number is (571)272-7516. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (571) 272-7499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew C Flanders/
Patent Examiner
Art Unit 2614